

MAGNET™



Release Notes
Version 2.7.1
July 25, 2014

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NOTE:
It is always recommended, before upgrading your field software, users backup their original job; and following any update to your field software, users perform in-the-field checks to ensure data integrity

Table of Contents

V2.7.1	6
MAGNET Field	7
General	7
V2.7	8
Field	9
General	9
Calculate	9
Configure	9
Coordinate System	9
Exchange	12
Map	12
Survey	13
MAGNET Field GIS	13
General	13
MAGNET Enterprise	14
Administration	14
Cloud Surfing	14
Map	14
Notes	14
Project Manager	14
Schedule/Timecard	15
MAGNET Office (Site and Topo)	16
General	16
MAGNET Office Site	17
General	17
MAGNET Office Tools	18
General	18
V 2.6	19
Field	20
General	20
Configure	20
Coordinate Systems	21
Exchange	21
Map	21
Stake	21
Enterprise	21
MAGNET Field GIS	22
General	22
Office Tools	23
New Features	23
Office (Site and Topo)	24
New Features	24
Improvements	24
Fixes	24
Office Layout	26
New Features	26

2.5.1	27
Field	27
General	27
v2.5	28
MAGNET Field	29
General	29
Calculate	29
Configure	29
Coordinate Systems	30
Exchange	30
Map	30
Stake	31
MAGNET Field Layout	32
Setup	32
MAGNET Mobile Exchange	32
General	32
MAGNET Field GIS	33
New Product Introduction	34
New Product	34
Office Tools	36
New Features	36
Office (Site and Topo)	37
New Features	37
Improvements	37
Fixes	37
Office Site	39
New Features	39
Improvements	39
Office Topo	40
New Features	40
Office Layout	41
New Features	41
Office Resurface	42
New Features	42
v.2.0.1	43
Field	44
General	44
Coordinate System	44
Survey	44
Office	45
General	45
v2.0	46
Enterprise	47
General	47
Field	48
General	48
Equipment	50
Job	51
Configure	51
Coordinate Systems	54

Exchange	54
Edit	55
Calculate	56
Map	59
Connect	60
Setup	60
Survey	62
Stake	63
Enterprise	65
Hybrid Positioning	65
Field Site	67
General	67
Field Layout	68
New Product Introduction	68
Office Tools	69
General	69
Coordinate Systems	69
View/Edit	69
Exchange	69
Report	70
Autocad Civil 3D	70
Office Topo	71
New Features	71
Improvements	71
Fixes	73
Office Site	74
New Features	74
Improvements	74
Fixes	74
Office Layout	75
New Product Introduction	75

V2.7.1

MAGNET Field

General

The following updates apply to all MAGNET Field Products (PC build)

- Resolved an issue when exporting .dwg files. DWG files exported from MAGNET 2.7 had ellipsoid heights instead of elevations even with a GEOID applied.

V2.7

Field

General

Improvements

- Added support for Beidou (BDS) tracking
- Added Beidou (BDS) and QZSS satellites to SkyPlot and Satellite List. Satellite colors have been updated to match Topcon schema and added new colors to support new satellite systems
- Added support for output of MSM messages for RTK base

Addressed Issues:

- Addressed an issue where mount points for certain networks were not shown in the Mount Point list

Calculate

Improvements:

- Added Azimuth (Az) display to a Traverse Report

Configure

Improvements:

- Added support for Bluetooth connection to the LN-100
- Added support for serial connection to Set60
- Added the ability to combine a Depth Sounder with NMEA receiver

Coordinate System

Improvements:

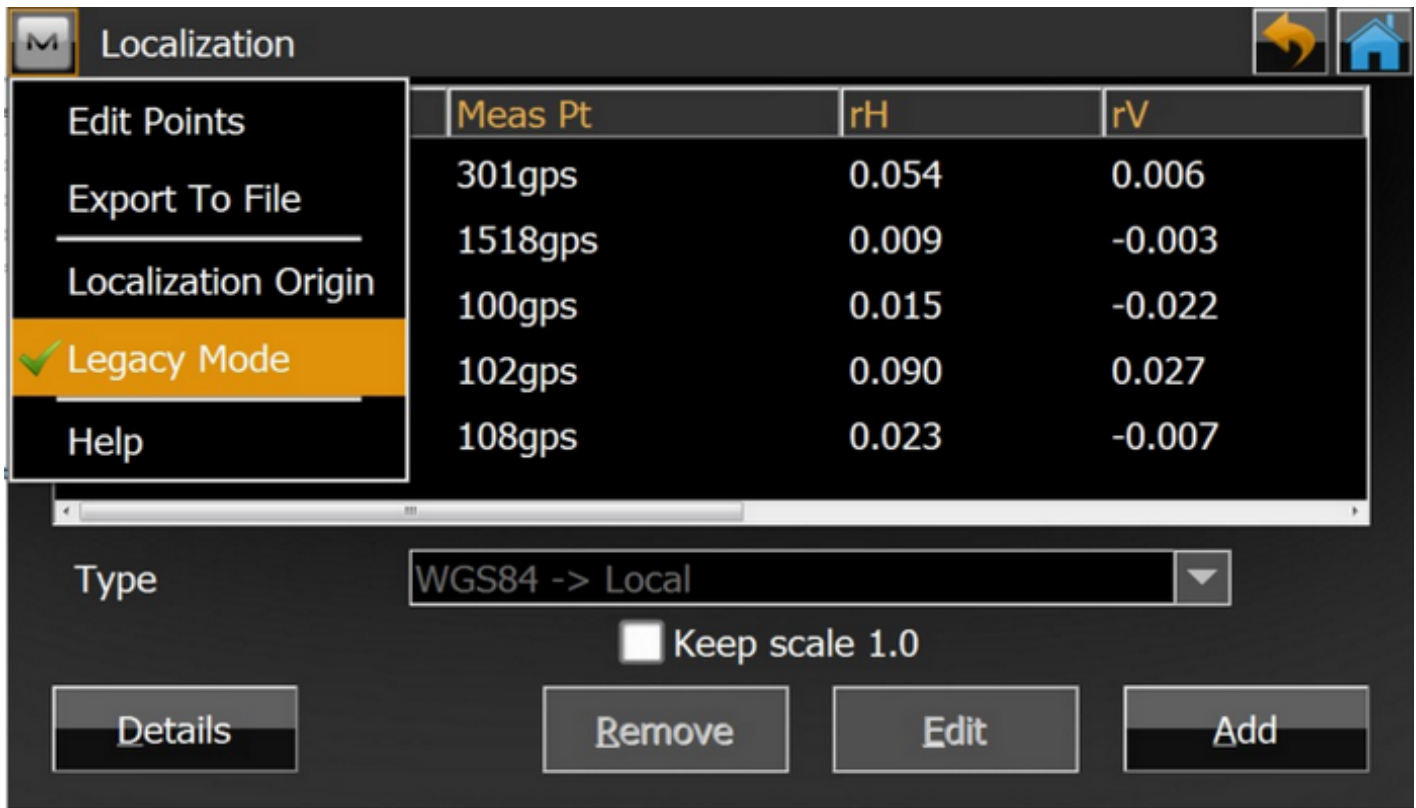
- Added support for South Korea KNGeoid 13
- Added support for Slovak Inverse Coordinate System

Localization Improvements:

MAGNET Field Controller software Version 2.7 now provides support for historical Survey and Machine Control projects with the addition of Legacy Mode to the Localization Setup screen. Users now have the option to select 'Legacy Mode' when setting up Localizations. Legacy Mode allows the user to share data with Machine Control products and/or Survey projects created with MAGNET Field Controller Software V1.x, TopSurv Field Controller Software, Pocket 3D and 3D Office applications.

The default Mode in MAGNET Field 2.7 is to use the New method which was introduced in MAGNET V 2.x. However, the addition of Legacy Mode is to enhance data exchange between MAGNET V2.7 and historical Survey and Machine Control Projects. For new projects, use of the default New method is recommended.

To enable Legacy Mode, users need to select 'Legacy Mode' in the Localization Setup Context Menu.



In addition to support for Legacy Mode, users can also choose the Localization Origin. The two options available are: Center of Localization Points and First Localization Point. The combinations available are described below.

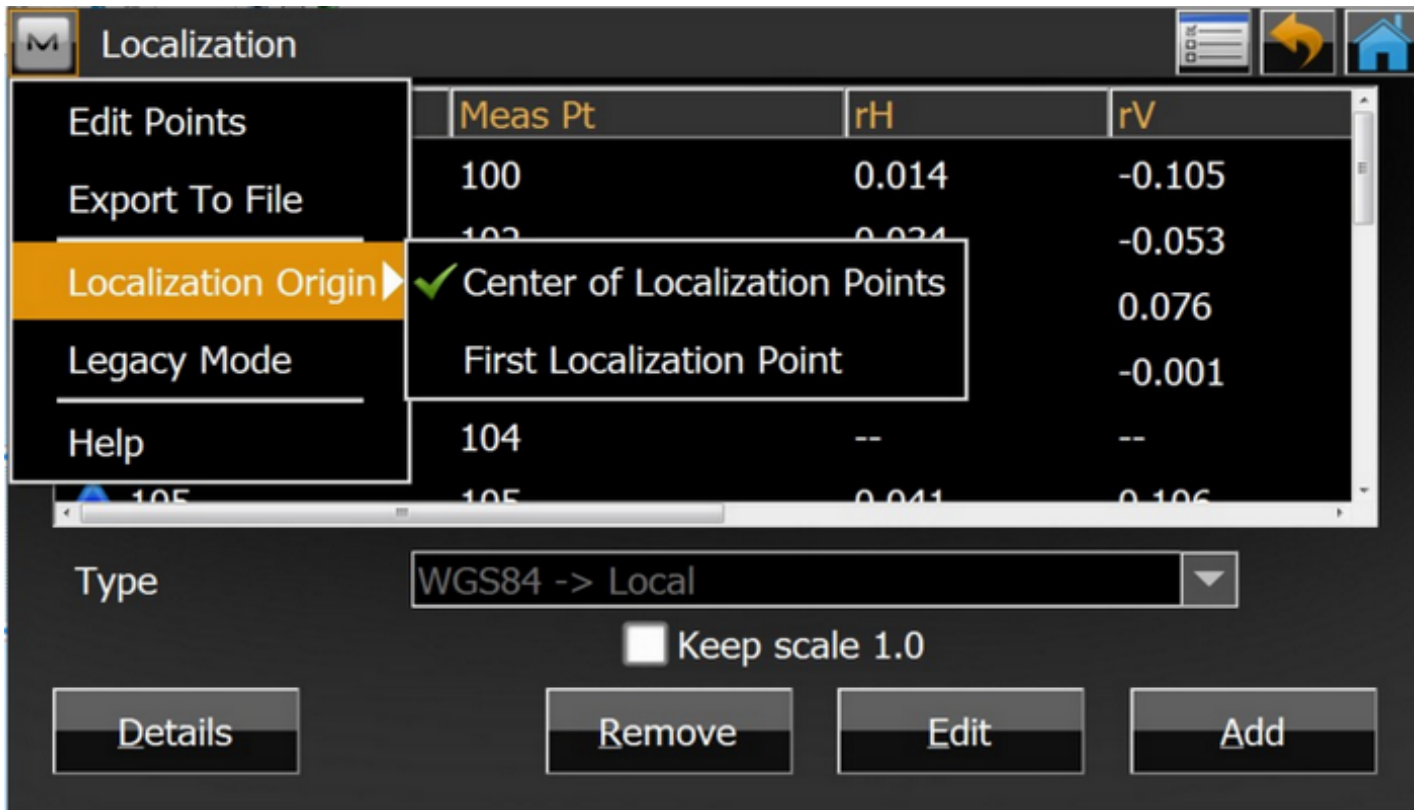
- **Legacy method / First Localization point** – Applicable for jobs collected using TopSURV v8.2.3 (and below) and MAGNET Field 1.x, as well as MAGNET Tools v1.x
- **Legacy method / Center of Localization points** - Applicable for field work collected using Topcon Pocket3D software, Topcon 3D Office, as well as MAGNET Office v1.x. This is the default setting when using Legacy Mode.

To change the Localization Origin, select 'Localization Origin' in the Context Menu of the Localization Setup feature. The default setting is to use 'Center of Localization Points'

Localizations using the New/Default Mode:

It is recommended when starting a new project, users choose the default settings in MAGNET Field Software which uses the 'New' Localization Method. For new jobs, the default mode is enabled automatically and does not require the user to change any settings in MAGNET Field.

Originally introduced in V 2.x, users also have the ability to set the Localization Origin when using the New/Default Localization Mode. To select the Localization Origin, click on the Context Menu and then choose either 'Center of Localization Points' or 'First Localization Point' from the Localization Origin option list.



The localization origin setting allows two options:

- **New/Default method / First Localization point** – Applicable for MAGNET Field v2.x and higher where the job's first point is held as the origin point for scaling purposes.
- **New/Default method / Center of Localization points** (default) - Applicable for MAGNET Field 2.x and higher where the job's centroid is derived and scaling is performed from the calculated location

How do the results compare between Modes and Localization Origin selected?

Switching from Legacy Mode to the new Localization mode leads to changes in parameter values as well as updates the results of the Coordinate Transformation. Internal results have shown the following:

- Changes in resulting coordinate values are within localization accuracy
- The previous method distributes all errors in the Control evenly across all points; the result is control points with lower accuracy are possibly hidden in the results.
- The new method provides a more robust determination of transformation parameters, and as a result,

control points with larger RMS will have larger residuals after localization. The low accuracy points are highlighted in the results and the user can simply exclude the points from the localization and recompute the results. The iterative process, supported by the new method, allows the user to identify, exclude or un-weight the potentially bad points.

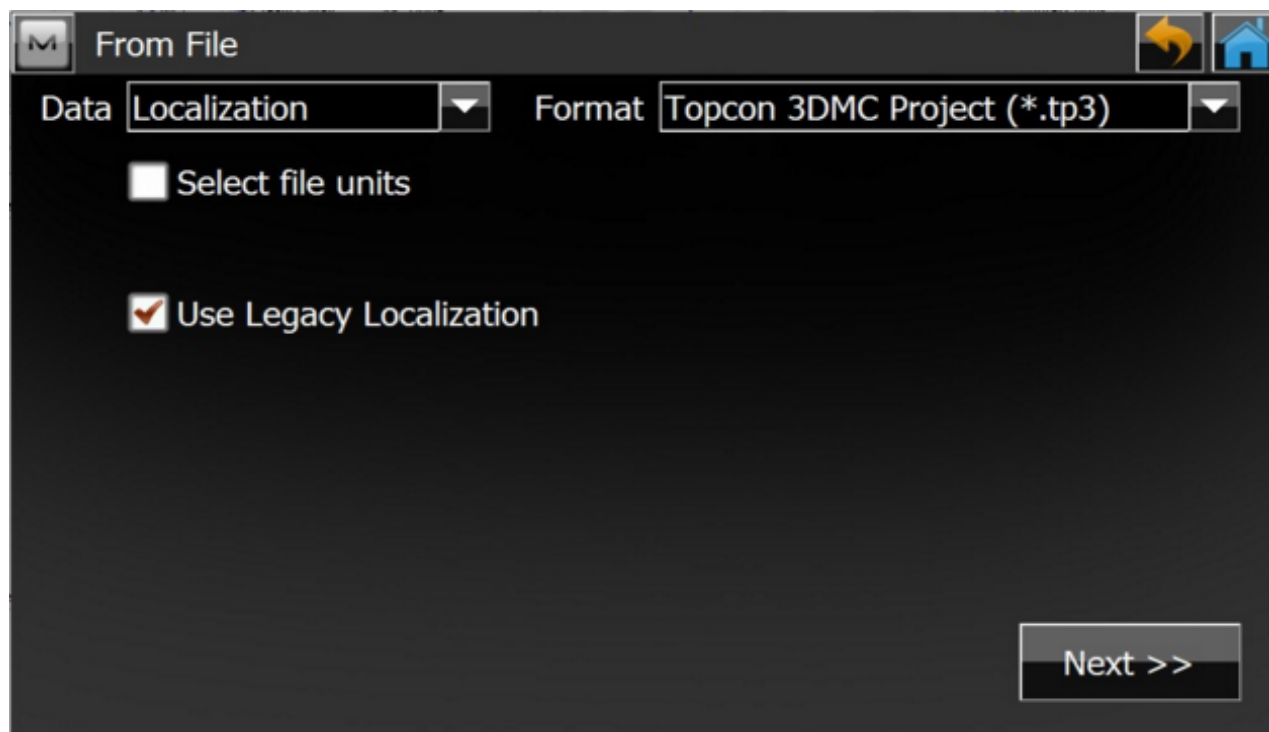
The New method provides the user with options by separating calculations of Rotation, Shifts, and Scale while the Legacy Mode supports traditional calculation methods. Both methods are correct but they suit different and specific tasks. Switching methods will result in changes in parameter values and possibly result in changes in the coordinate transformation.

It is advised that users select the mode and Localization Origin that best meets the project needs, and use the above description of the available options as a guide when choosing the appropriate option for the project.

Exchange

Improvements:

- Added the option to select Legacy Mode during import of a Localization from Topcon GC3 and TP3 files. 'Use Legacy Localization' is checked on by default when importing a GC3 or TP3 localization file



- Added the option to export distance units information to DWG

Map

Improvements:

- Improved Zoom in 3D map including support for 'Pinch-to-Zoom'
- Support for closing lines in Map view using the snap toolbar

Survey

Improvements:

- Improved Optical Auto-Topo by Time in Tracking and Rapid EDM Mode

MAGNET Field GIS

General

Improvements:

- Updated the default GPS receiver to the HiPer SR
- Added 'Field Advanced GIS' to the activated modules list when GPS+ module is purchased

MAGNET Enterprise

Administration

Improvements:

- Create 'Teams' from Staff Members
- Create and maintain your client list

Cloud Surfing

Improvements:

- View publications from your Orbit Map publications

Map

Improvements:

- Updated coverage of TopNET live networks in Europe and North America
- Draw and Edit 'Redlines' on the map and save to projects

Notes

Improvements:

Added a new Notes Widget that allows you to:

- Create text or photo notes
- Associate notes with projects
- Redline on photo notes

Project Manager

Improvements:

Added a new Project Manager widget that allows you to:

- Create and Edit Cost Proposals for projects
- Schedule staff members to perform project tasks
- Get a 'dashboard' view of all projects or a selected project
- Track project progress
- Manage and track time spent on projects
- View real-time cost accounting for projects

Schedule/Timecard

Improvements:

Added a new Schedule/Timecard widget that allows you to:

- View the tasks that have been assigned to you
- Fill out your timecard for time worked on tasks
- Assign a completion percentage to tasks worked on

MAGNET Office (Site and Topo)

General

The following improvements apply to both MAGNET Office Site and Topo:

- Revised export to DWG to remove duplicate blocks and symbol names. The duplicate names have caused errors when opening the DWG in AutoCAD
- Revised the import options to create layer names based on code names when code is not defined in the code library
- Revised Auto-Update to provide the option to install after downloading
- Added a progress bar when downloading updates
- Revised export to MAGNET Field (.mjf) to set the AsBackground option ON by default
- Revised Localization to support 'Legacy Mode', which is supported by MAGNET 1.x, TopSurv and Machine Control products (Pocket 3D and 3D Office).
- Reinstated the ability to define a scale factor for symbols

MAGNET Office Site

General

The following improvements apply to MAGNET Office Site

- Corrected a problem with title block text not being retained when plotting from the Road design view
- Road design revised to correct an issue with the mis-alignment of added strings
- TP3 file export revised to include the Site ID

MAGNET Office Tools

General

Improvements:

- Added support Beidou (BDS), Galileo and QZSS Satellite Systems for RTK measurements
- Revised Localization to support 'Legacy Mode', which is supported by MAGNET 1.x, TopSurv and Machine Control products (Pocket 3D and 3D Office)
- Improved support of Check Shots in TS Traverse Adjustment methods

V 2.6

Field

General

- Improvements
 - When available, EULA and License Agreement are in the local language
- Addressed Issues:
 - Resolved an issue with incorrect position shown with Geo-referenced images
 - Resolved an issue that required the user to reset RTK to obtain Radio Link
 - Resolved an issue when importing .shp files with a projection.
 - Resolved multiple issues related to performance when staking surfaces and accessing points for stakeout
 - Resolved an issue when importing Code Files (.xml)
 - Resolved an issue when configuring the GR-5 915SS radio
 - Resolved an issue in MAGNET onboard that resulted in a delay when shooting a target with F1, and F2
 - Resolved an issue with Soldner Netz88: WGS<->local datum coordinates are not matching
 - Resolved an issue with WGS84 XYZ -> Amersfoort2004 XYZ transition resulting in wrong coordinates
 - Resolved an issue with Germany MV RD_83 datum resulting in wrong Ellipsoid Height when switching from local datum to WGS84
 - Resolved an issue with NAD83(CSRS) datum when using ON83CSv1.gsb
 - Resolved multiple issues when exporting SDR-33 format files
 - Resolved an issue when listing mountpoints for networks
 - Resolved an issue with initial connection to Network RTK resulted in incorrect heights

Configure

Added Support for the Following Equipment

- HiPer SR+ Dual SIM
- SA300 antenna
- GHX2 Receiver (Mesa RTK)
- Field controller Panasonic FZ-M1 (Camera, GPS)
- Serial adapter for FC-25 controller

Coordinate Systems

- Support for UK railway two stage projection added

Exchange

- Support AutoCAD Point Layout (APL) point blocks import from AutoCAD DWG/DXF formats
- Added Inches to the list of distance units when importing AutoCAD DWG/DXF files

Map

- Added Pinch-To-Zoom for multi-touch screens
- Enter Plan: Default start point added when there are no points in the job

Stake

- Improved the Speed of Stake surfaces

Enterprise

- MAGNET Relay mode only (China mode)
- When .shp folder is uploaded to MAGNET Enterprise, a .SHP.ZIP is now created

MAGNET Field GIS

General

- Added a separate item “Field Advanced GIS” to the activated modules list when GPS+ module is purchased

Office Tools

New Features

System

- Automatic and manual check for the product hot fix updates

Coordinate Systems

- Support datum parameters from WGS84 to Local (required for Croatia)
- Support UK railway two stage projection

Import/Export

- Support Import of AutoCAD Point Layout blocks from DWG

Civil 3D/AutoCAD

- Support Civil3D 2014

Office (Site and Topo)

New Features

- Automatic update notification to provide the user with notification, download and installation of bug fixes for a released version only
- Data Cleanup added to TOPO Module to aid when preparing data for 3DMC and modeling

Improvements

All improvements listed in this section apply to both MAGNET Office Topo and MAGNET Office Site.

- Elevate by Leader Text now converts string leaders to polylines before elevating
- Enhanced support for Transcend USB keys. The supported USB Key Logic has been revised to support new internal serial number lengths as defined by the vendor. The Storage capacity of the key is no longer a restricting factor, keys of any capacity can be used as long as it is greater than 1GB
- Allow double click to open projects
- Added support for EULA and license agreement in local languages
- When exporting to older file formats (.tsj) added a message 'This project contains data and objects that are not supported in previous versions of the field software. Continuing may result in missing data and/or objects in the exported project'
- Added Support for Acad leaders on Import
- Attribute handling was enhanced so MAGNET Office only shows points with valid attribute values; and on export, only points with valid attribute values are exported. This prevents showing points with null attribute values

Fixes

The following Fixes apply to all modules of MAGNET Office (where applicable)

- Fixed an issue in String with Set Elevation by Intersection
- Fixed an issue when creating new resurface data
- Fixed an issue with arcs when exporting image to MJF
- Fixed an issue saving imported data with invalid linestyle names
- Fixed an issue when inserting PDF by page number
- Fixed an issue with export TSJ where linework has heights
- Fixed an issue with export TSJ as TP3 when there is a dot in the filename
- Fixed an issue which resulted in a crash when using 'Fillet Curb Return' option
- Fixed an issue when exporting attributes in CAPS to MAGNET Field
- Fixed an issue when sending VA alignments to MAGNET Field
- Fixed an issue that resulted in duplicate points being created when importing MJF's.
- Fixed an issue with arcs when importing TSJ files
- Fixed an issue with 00 string being added to *S command during MJF import
- Fixed an issue when saving job files with too many drawings
- Fixed an issue with missing last cut/fill area in Roads Report
- Fixed an issue when uploading a job for MAGNET Field to Enterprise, users can now enter the file name
- Fixed an issue when uploading mjf.zip to Enterprise, file details are now displayed
- Fixed an issue with Bar Scale settings not retained

Office Layout

New Features

- PDF Raster to Vector tools added to MAGNET Layout

2.5.1

Field

General

- Optimized for new Topcon LN-100 Hardware
- Addressed Issues:
 - Resolved an issue in MAGNET onboard that resulted in a delay when shooting a target with F1, and F2.
 - Resolved an issue when staking surfaces
 - Resolved an issue when starting a base with a serial cable connection

v2.5

MAGNET Field

General

- Added Automatic Check in the web and installation of most recent language file and Context Help updates from the installer for both PC and Controllers
- Added an ability to use custom language file and Context Help. Custom language and help files can now be selected during installation for both PC and Controllers.
- Open File manager improved for fast access to MAGNET folders and external USB drives
- Windows 8 Pro Tablets support. Includes support for internal GPS on Tablets.

Calculate

Enter Plan Enhancements

- Added a single command to measure Length and Azimuth
- Added Measure tool for angle/direction/distance directly with points from the map.
- Draw Circle command added
- Added Undo button to the main screen to improve workflow

Configure

- LN-100 supported with the ability to connect via WiFi using either Add-Hoc or Access Point (network) types of connections
- FC-500 Field Controller supported
- HiPer SR+ internal modem support
- Added tracking of BeiDou
- Angle only mode added to the EDM menu for fast turn off/on
- CSD Connection now supported using internal FC-236 cellular modems
- Onboard: Target key now supported. By pressing the TARGET key, Users can toggle target type between: Prism,

Reflectorless and Sheet

- Support integrated BT Manager for external cell phone modems

Coordinate Systems

Localization Update:

MAGNET 2.0.1 and higher use a new localization method that utilizes an iterative process to identify errors in control. Points identified with the greatest error will be weighted lower in the overall solution and will be shown with the highest residuals. When using the updated localization, MAGNET 2.0.1 and 2.5, points that do not fit in the solution will have higher residuals and are more easily identified and removed by the user. This is an improvement from previous releases.

Note that v1.x localizations with gross errors in the control, when upgraded to the new localization in v2.x, will result in job points with different locations after the job is upgraded. Therefore, as with any software upgrade, Topcon recommends you complete existing and ongoing projects prior to upgrading; and following any upgrade, you perform in-the-field observations to ensure data integrity.

NOTE:

It is always recommended, before upgrading your field software, users backup their original job; and following any update to your field software, users perform in-the-field checks to ensure data integrity.

New Features:

- Canadian NTV2 transformation
- Slovak Transformation JTSK03 - JTSK

Exchange

- Import of DWG 2014 files supported in PC version
- Import of shp.zip files added
- Supported import/export of 12D models as layers
- Added an ability to import Shape (SHP) file as background
- Multiple files can now be selected for uploading at once

Map

- Preview map added to the 'Object near selected points' dialog

- Updated Fillet in Snap Toolbar to match AutoCAD logic
- Duplicate points no longer created if there is already a point at the snap location
- Support Snap Perpendicular with background lines

Stake

- Initial Point Name is now available for all Stake routines that do not have a specific design point

MAGNET Field Layout

Setup

- Significantly redesigned the Resection Reference Points wizard

MAGNET Mobile Exchange

General

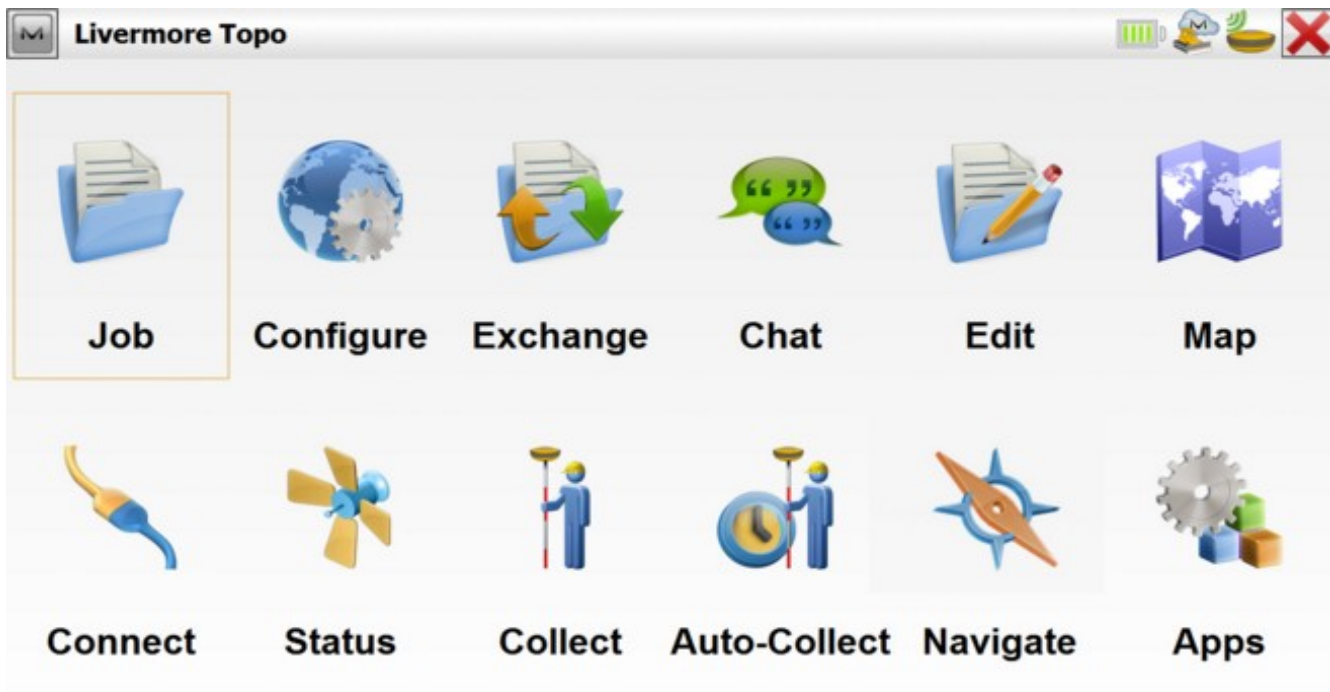
- Added new Transformation Wizard to upload files to MAGNET Enterprise

MAGNET Field GIS




New Product Introduction

New Product

MAGNET Field GIS is field software for data collection and inventory navigation. Enhanced with cloud connections to the office, MAGNET Field GIS provides GIS professionals with an easy to use GIS data collection and maintenance solution enhance with workflows designed to capture high quality data quickly and easily.



- Added filter to export only updated points and export of the last updated coordinates

 To File  

Data Format

Select file units Use only updated points
 Use updated coordinates

Store description as attribute

Office Tools

New Features

- Added Network License Support
- Support the import of coordinates from the Canadian CSRS-PPP service
- Support the Canadian NTV2 Grid Transformation

Office (Site and Topo)

New Features

All improvements listed in this section apply to both MAGNET Office Topo and MAGNET Office Site.

- Implemented Context sensitive help menu
- Added the option in export to mjf file to export MAGNET Office drawing as background image
- Added an option to Rotate by Direction
- Added Network Installation and License Manager
- Enterprise Ribbon - Added two new options to the ribbon. Upload Current Job for MAGNET Field, and Upload Current Job for 3DMC

Improvements

All improvements listed in this section apply to both MAGNET Office Topo and MAGNET Office Site.

- Translate/Rotate and Move selection revised to prompt to keep or replace the destination point
- Drawing Editor - Insert Scale Bar revised to allow for specification of the decimal precision
- Point Notes - Point Notes are now included in flyover display, point information display and, point annotations. Added Point Note annotation flag in survey code definitions
- Translate/Rotate and Modify Rotate commands revised to include option to rotate symbols
- Enterprise Ribbon - Upload Current Job has been revised to prompt to save before upload to ensure all current data is uploaded
- Export to tsj file reinstated and now available
- Delete Points - Icon moved out of sub-menu and placed in Modify Ribbon > Point Group
- Added Select All option to View Ribbon > Delete Layer
- Added an option to use localization from Magnet Field or 3DMC

Fixes

The following Fixes apply to all modules of MAGNET Office (where applicable)

- Fixed an issue with turning off lines and polygon areas in the General Settings dialog

- Fixed an issue with importing of dgn files resulting in incorrect or missing symbols
- Fixed an issue with DTM to export preview showing incorrect data
- Fixed an issue with job using localization not displaying solid linestyle as text
- Fixed an issue in linestyle table when displaying solid linestyles as text
- Fixed an issue with Datum transformation only transforming the Z value
- Fixed an issue when minimizing the menu Ribbon. The minimized state was not remembered after defining the program settings
- Fixed an issue with not being able to delete all objects
- Fixed an issue where Contour End labels not working
- Fixed an issue with Layer Off option continuing after cancel is selected
- Fixed an issue with Road strings not being drawn smoothly when Activate Template Transitions is applied
- Fixed an issue with the listing of the Netherlands projection
- Fixed an issue with exporting to a dxf or dwg file. The option to export to both formats has been restored
- Fixed an issue with the importing of dxf file containing hatching
- Fixed an issue with not being able to clear the default code in the General Settings dialog
- Fixed an issue with import of TP3 files with layer names that include the \$ symbol

Office Site

New Features

- Implemented Context Help menu
- Export to mjf file - Added option to export MAGNET Office drawing as background image.
- Add new option to Rotate by Direction
- Added Network Installation and Network License Manager
- Enterprise Ribbon - Added two new options to ribbon, Upload Current Job for Magnet Field and Upload Current Job for 3DMC.

Improvements

- Road View > Cross Section Volumes - Added option to calculate rock volumes when a road surface is specified
- Manual Road Entry - Revised to support alignments created in the survey view.
- Edit Strings - Revised to remember control points when command is closed and reopened using the same string. Added new Control On/Off button and ability to select multiple points at once.
- Improved LandXML import of alignments by adding prompt for cross section spacing and option to apply to all imported alignments
- Cross Section Plotting - Revised to provide options of Station labels as 0+00 or 0+000

Office Topo

New Features

- Added Enterprise Ribbon

Office Layout

New Features

- Added Create points option
- Added Delete points option

Office Resurface

New Features

- Added support of Profile based elevation data (Zp)
- Added options to show/hide string, Z and Zp graphs
- Added vertical exaggeration to Zp graph
- Added panning of Zp graph

[v.2.0.1](#)

Field

General

- Issue with KOF Format export fixed
- Issue with low GDI memory fixed

Coordinate System

- Issue with Localization fixed

Survey

- Addressed Set collection and Scanning issues in onboard

Office

General

- Incorrect Volume calculation in MO Site - a bug in Roads volumes when pavement parameters were set to Urban.
Fixed
- Issue with Localization fixed (Tools)
- Fix for download file from total station (ACK/NAK protocol) (Tools)
- Include a bug fix that is preventing users from importing dxf files created in MO into AutoCAD
- Add the Enterprise ribbon to Magnet Topo

v2.0

Enterprise

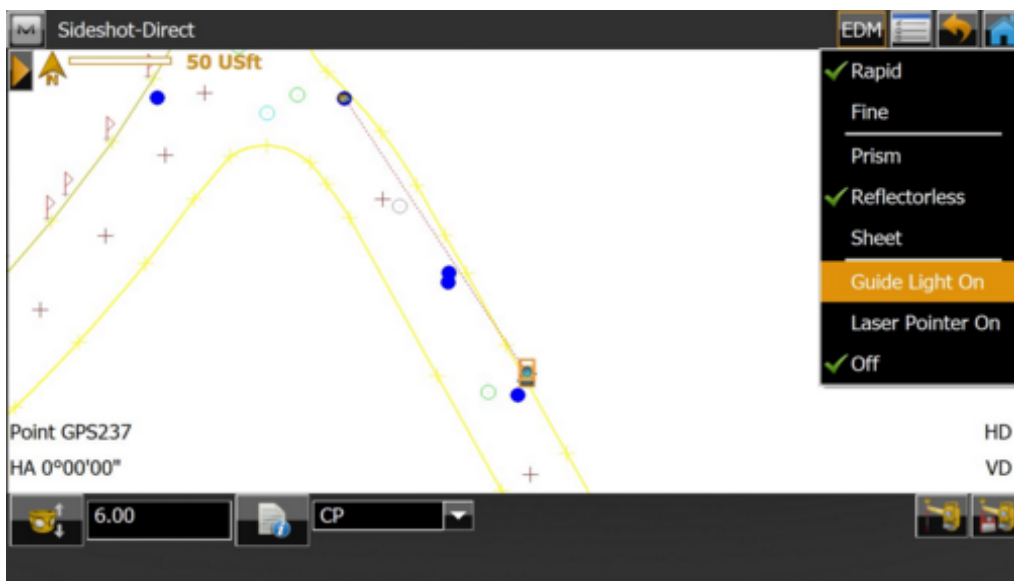
General

- New Landing page to improve performance.
- Improved performance of all applications.
- Support of MAGNET Field 2.0 improvements with regard to MAGNET Relay.
- Added the ability to remember the user login.
- Minor Data Manager and Asset Manager improvements.
- Photo Notes from MAGNET Field now supported on the map.

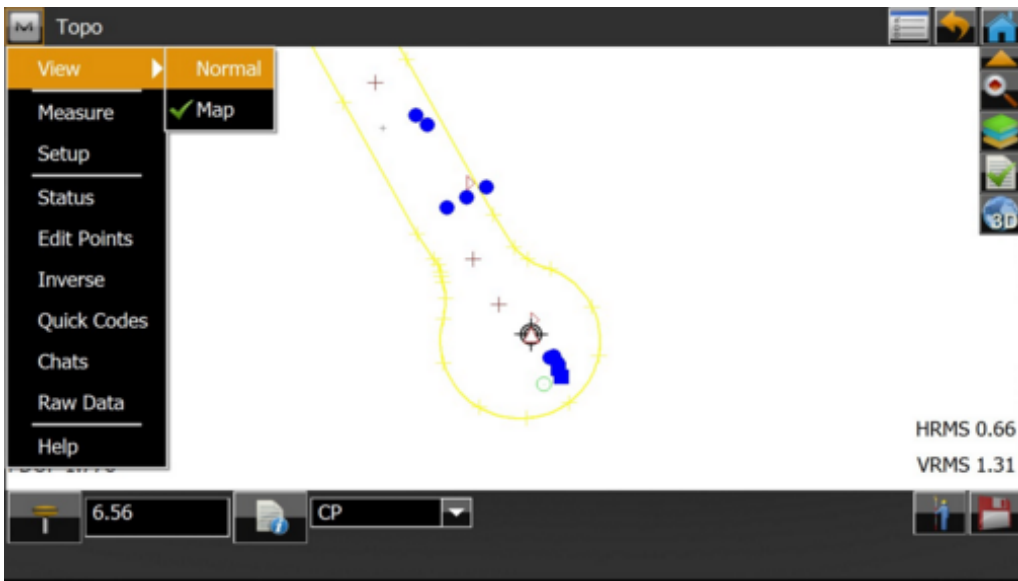
Field

General

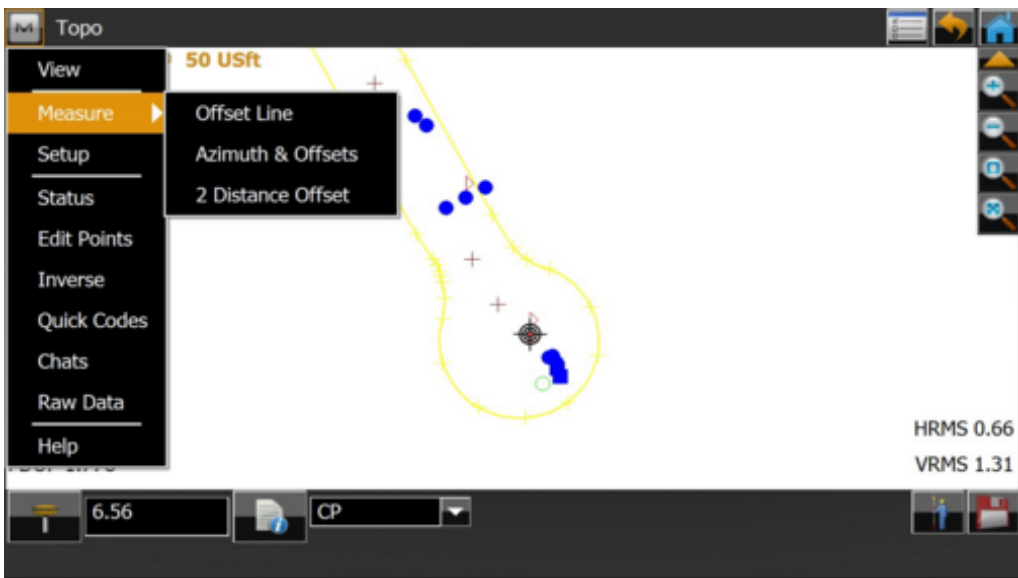
- Significantly improved the speed of loading and zooming surfaces in all map views.
- Multiple deletion added for Edit Lines/Areas/Point Lists dialogs.
- Selection from map improved.
- Support of "S", "W" suffixes for lat/lon coordinates.
- Improved the context menu in all Measure and Stake routines.
- Laser Pointer and Point Guide now available in the EDM button for faster access.



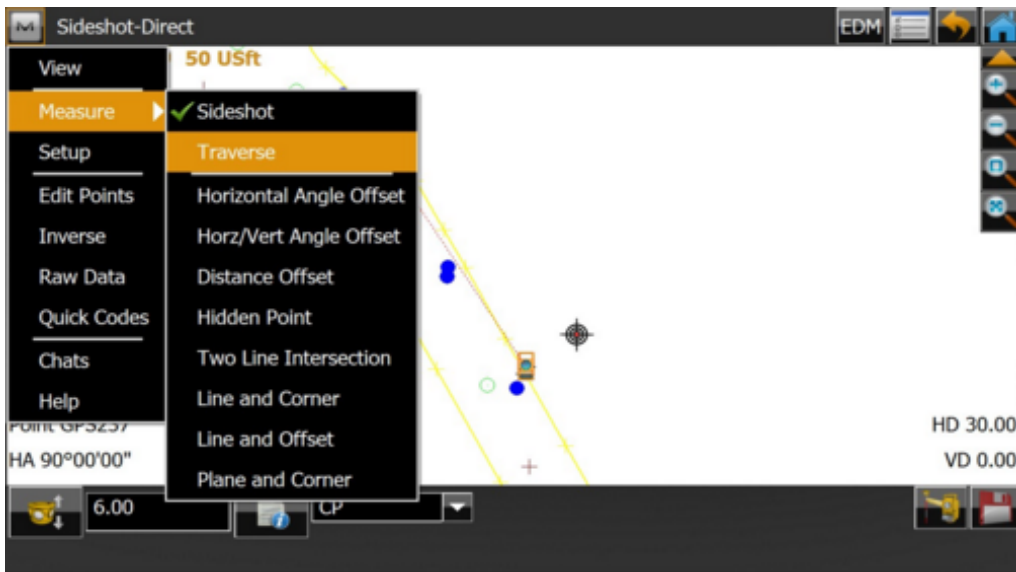
- In all Measure routines tabs have been removed:
 - To switch from Map view to Normal view, select the Context Menu - View menu item.



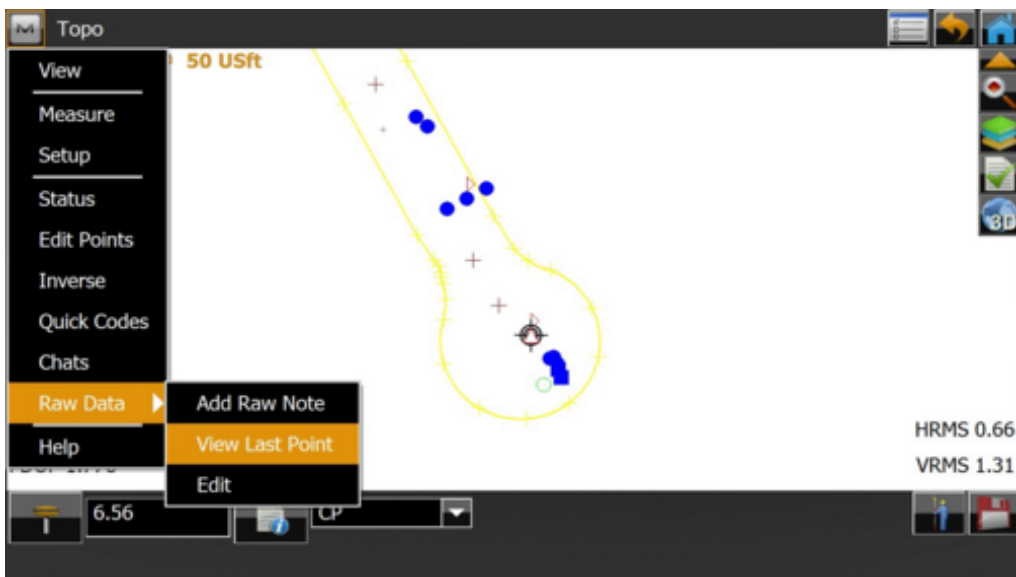
○ Offsets are now accessed via the Context Menu - Measure group.



○ Sideshot and Traverse modes are now toggles via the Context Menu - Measure group.



○ The Data page is now accessed via the Context Menu - Raw Data - View Last Point menu item.



Equipment

- Topcon IS-310 is now supported.
- Topcon IS Robotic Total Stations - While using reflectorless, Touch Drive has been significantly improved.
- Topcon DS-AC+ is now supported.
- Topcon DS-AC: Auto-aiming function supported in Measure and Stake routines is now supported.
- Topcon GTS-250/Sokkia SET60 is now supported.

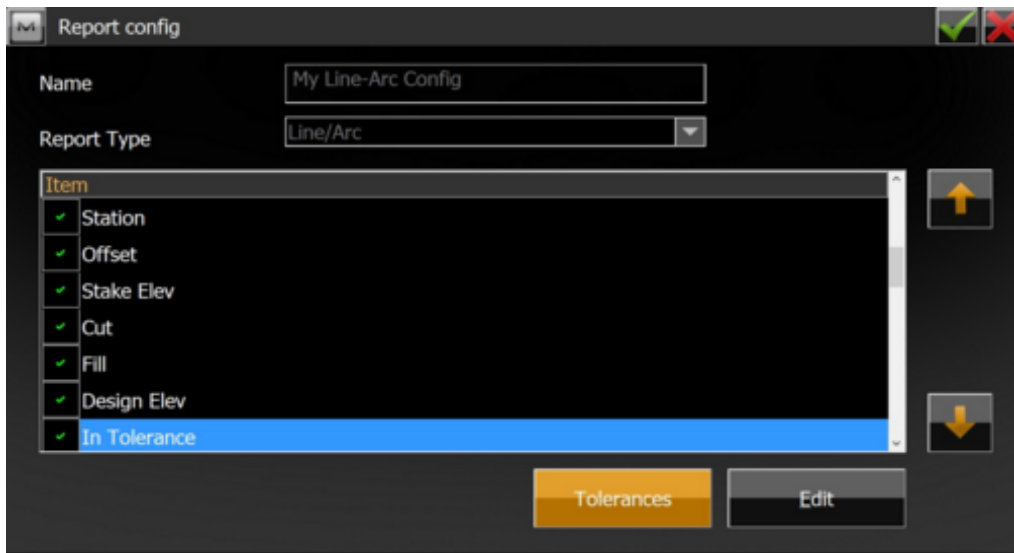
- Topcon MG-A8 antenna is now supported.
- Topcon Tesla is now supported for CSD calls (where CSD is supported by the cellular provider).
- Topcon FC-236 is NOT supported for CSD calls due to the hardware and firm ware limitations.
- Getac PS-336 i now supported with the following limitations:
 - The serial port is not working on this device at this time, awaiting an operating system update from Getac.
 - The camera is not working on this device at this time, awaiting an operating system update from Getac.
 - The internal GSM modem of Getac PS-336 can now be used for CSD calls (where CSD is supported by the cellular provider).
- Satel SRL-35 external radio is now supported.
- Leica Disto D8 for laser offset is now supported.
- Leica Conventional/Reflectorless optical instruments are now supported (TCR400 & TCR700).

Job

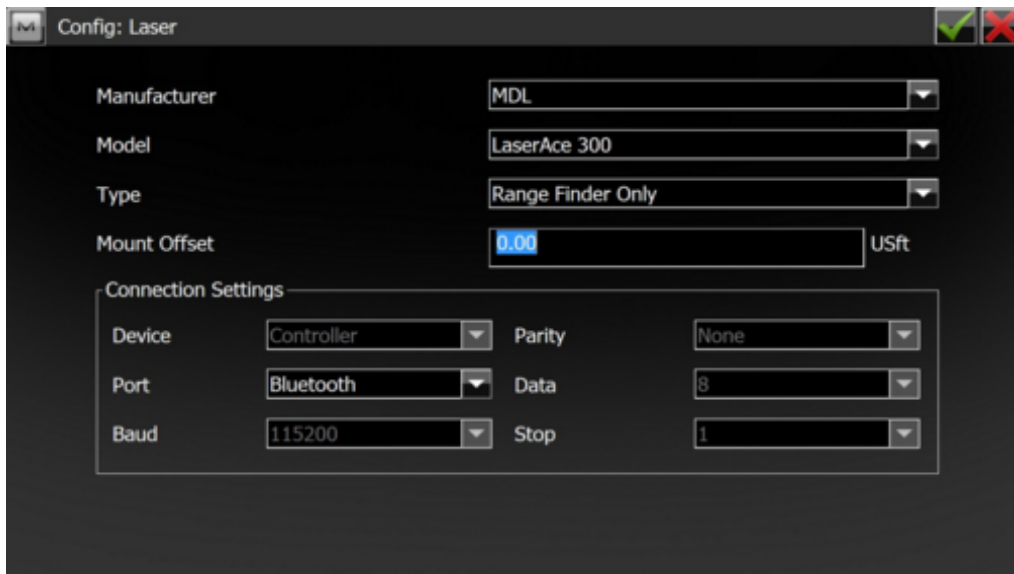
- Job Info: Receiver options list was improved to match the format of TRU.

Configure

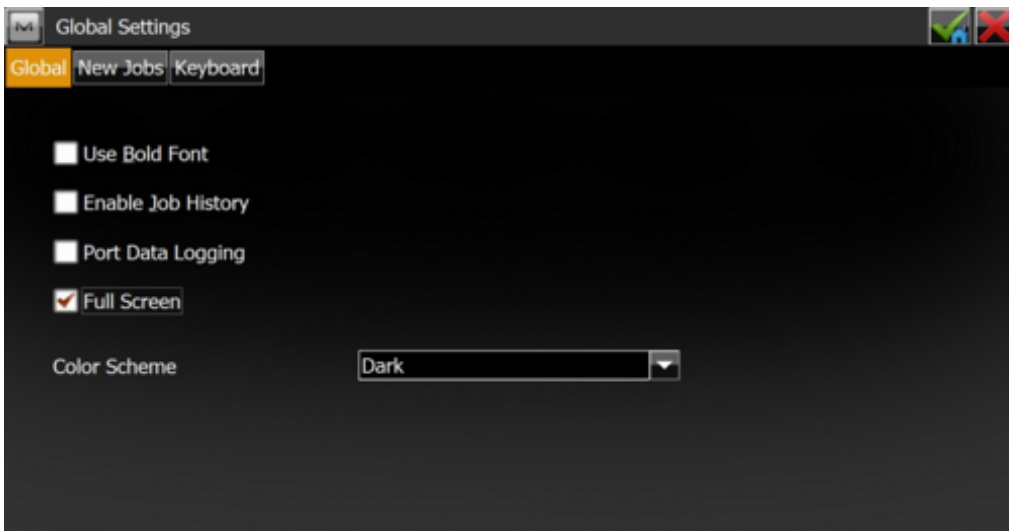
- Internal GSM modem of Getac PS-336 and Tesla can now be used for CSD data call (where CSD is supported by the cellular provider).
- Stake Reports: Added the ability to define tolerances, and report which points fall within the report's specified tolerances. Also added the required In Tolerance column that will show if a point is in tolerance (Yes or No).



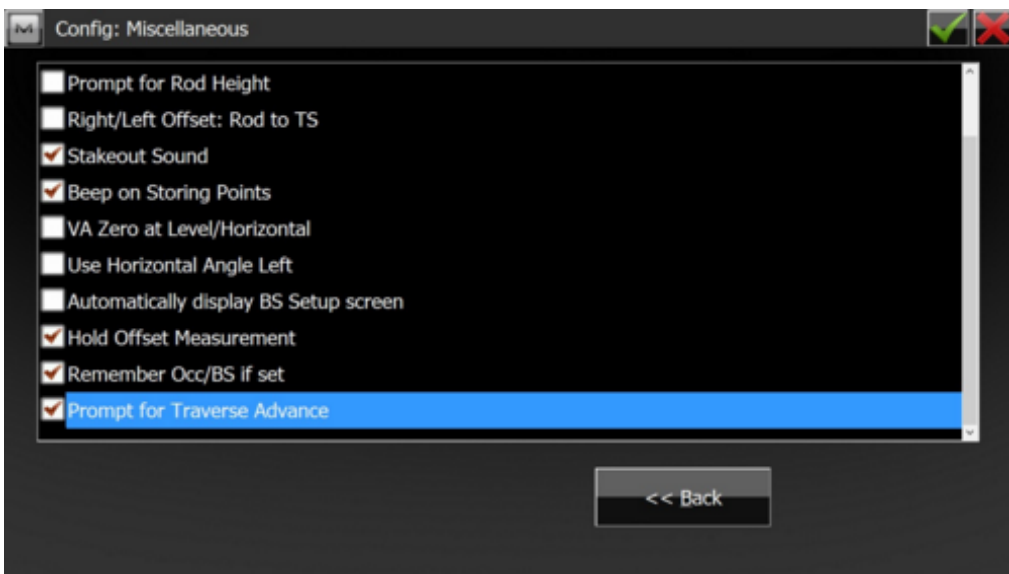
- Stake Reports: Added the ability to copy a Configuration.
- Significantly redesigned modem configuration wizard:
 - Now only applicable modems are shown.
 - The most common receiver modem is now set as the default.
- Laser range finder: Added the ability to define the mount offset.



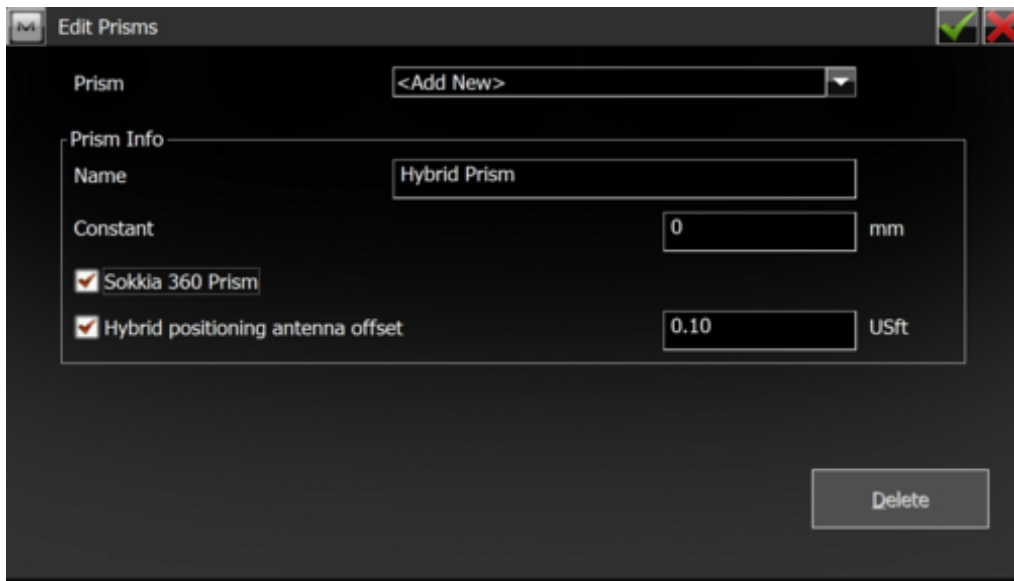
- Global: Full screen mode for Tablets added, all resolutions supported.



- Survey Configurations: Added the ability to automatically advance the instrument setup after collecting a Traverse point.



- Hybrid Positioning: Added Hybrid Positioning Antenna Offset option to prism offsets configuration page.

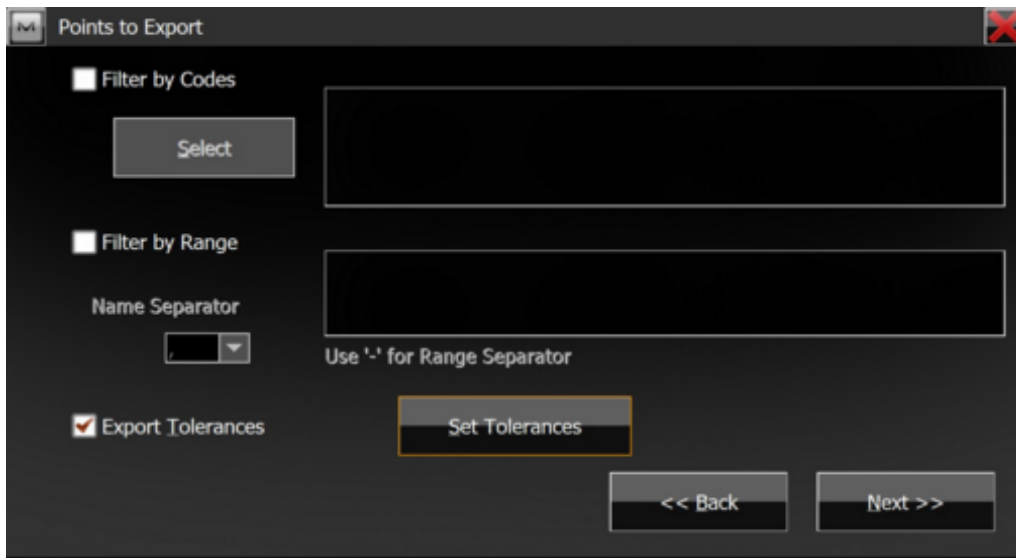


Coordinate Systems

- NAD83 (2011)
- Korea datum and projections (1985 & 2000) added.
- Finland geoid FIN2005N00 added.
- New Danish map projections.

Exchange

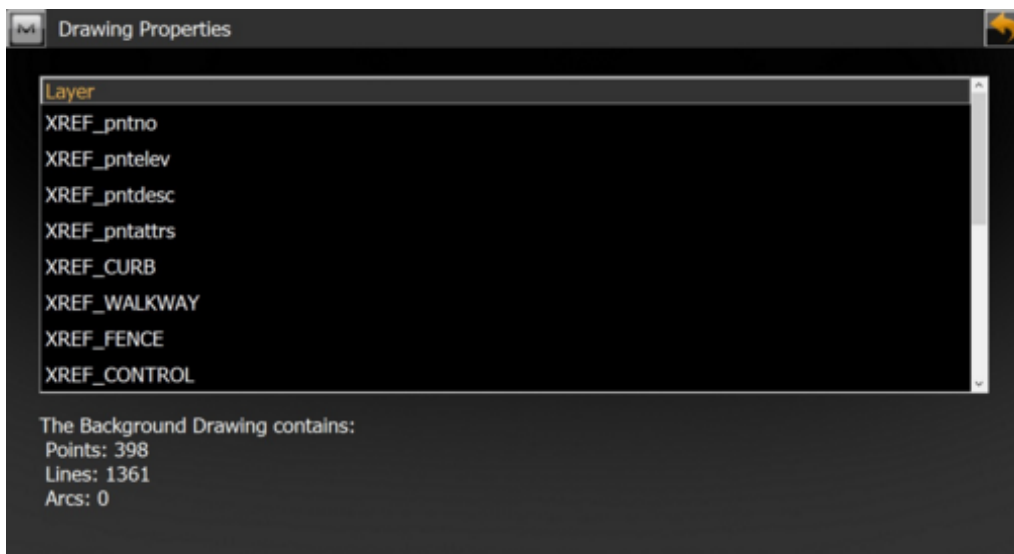
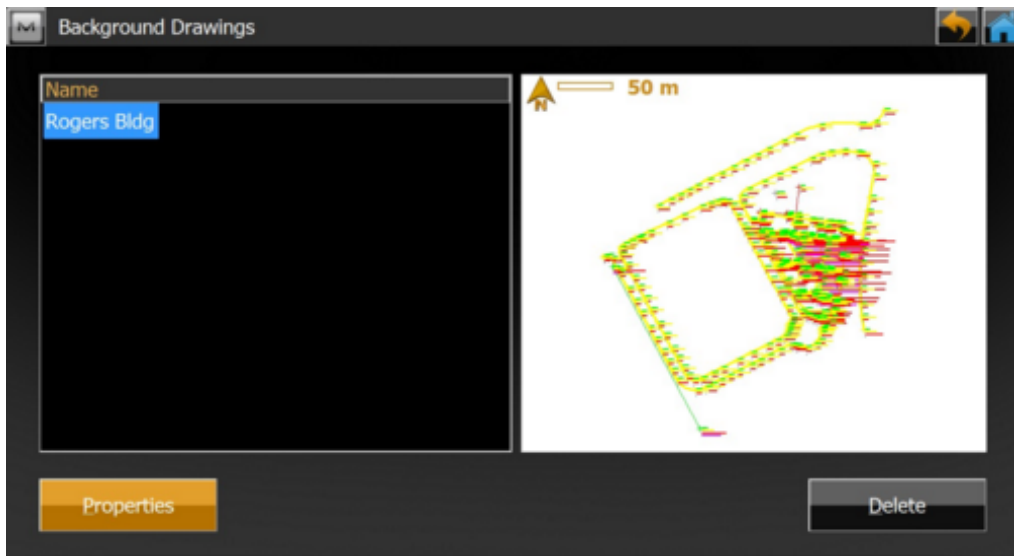
- Added the support for surface color for DXF, DWG, and TP3 formats.
- Export Filter by Tolerances: Added a user defined export tolerance filter (N/E/H) for Export - Points - Cut Sheet formats.



- Export to Belgian Cadastre format.
- Export to Belgium GSI8 format.
- Import/Export for Profila format (Finland).
- Import/Export for 12D ASCII format (also supports Unicode version).
- Import/Export points for SDR format.
- Added custom number of decimals in height for text label for DXF/DWG export.
- Added custom Code Styles options for export to SDR33 RAW format. The standard codes output is still supported as an option.
- Job history export for optical measurements extended to output rod height for topo points.
- Added an option to define HA/VA/SD output format for export TS raw data.

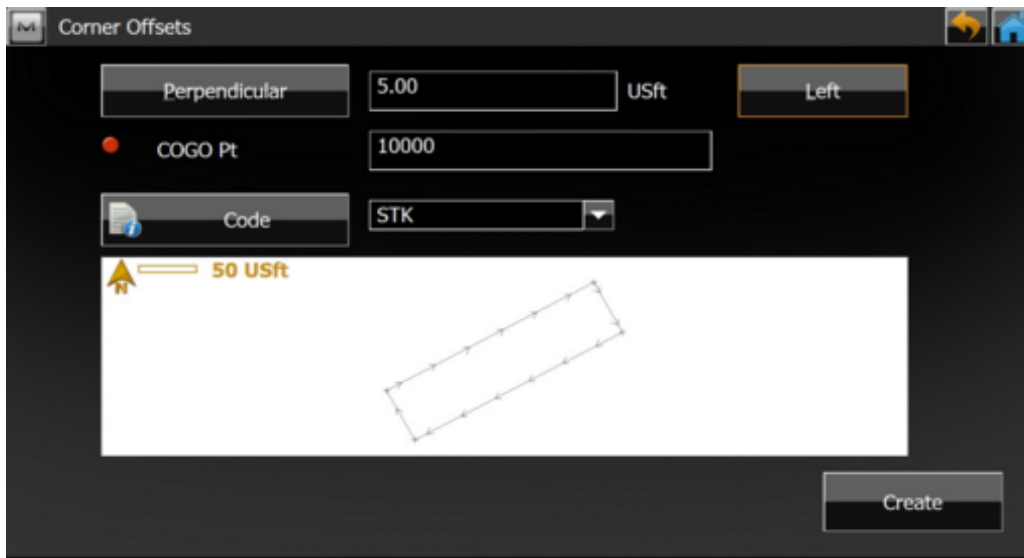
Edit

- Raw Data: Distance measuring mode (prism, non-prism) and used prism constant are now stored.
- Background Drawings: Multiple background drawings can now be imported and optionally turned off for showing on the map or removed completely. Quick info about each drawing is also available.



Calculate

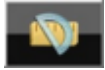
- Corner Offsets: Perpendicular and inline offsets can easily be calculated from linework with angle points.



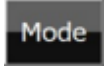
- Enter Plan: Easily enter plan dimensions to create points and lines (optional).



Angle Math Tool: Quickly add or subtract common angle from the current angle.



Measure Tool: Use 2 points to input direction or distance.



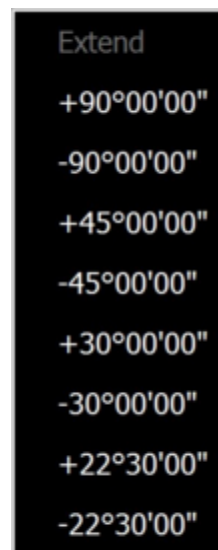
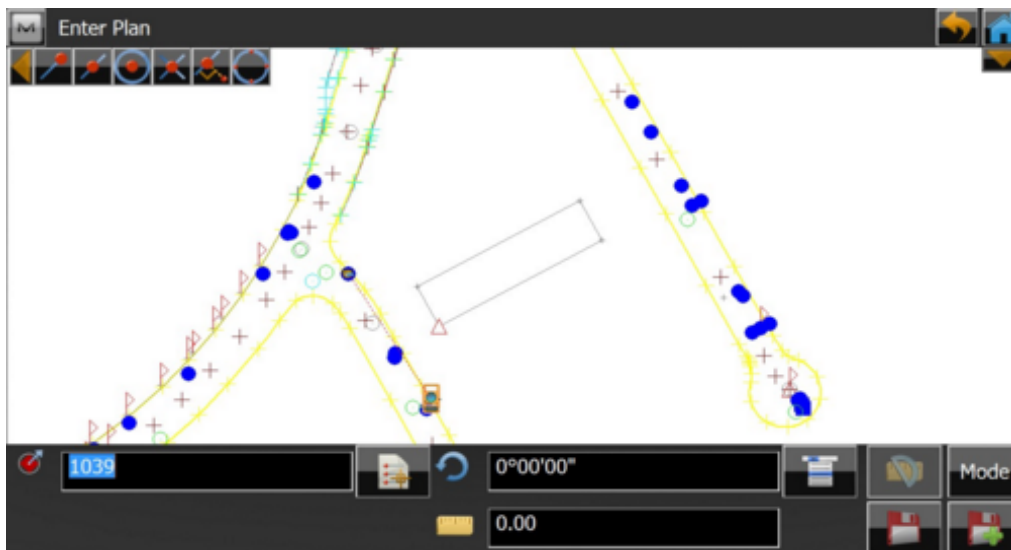
Mode: Options to specify the type of entity that will be input and created.

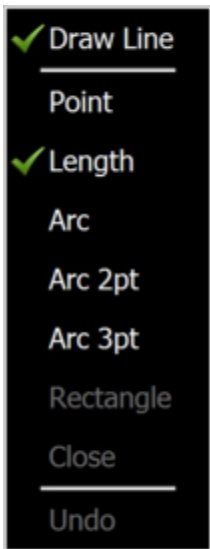


Store: Stores the point without advancing to it.

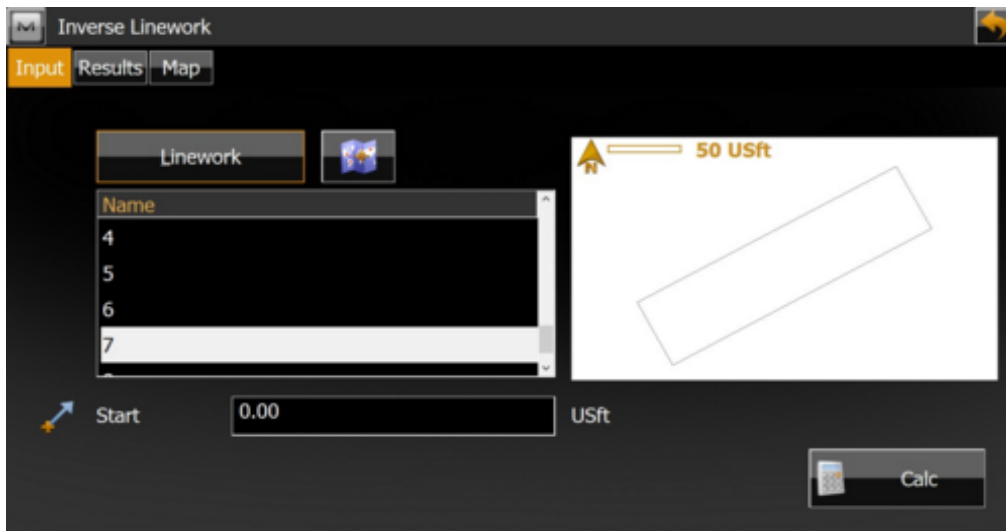


Store and Advance: Stores the point and advances to it.

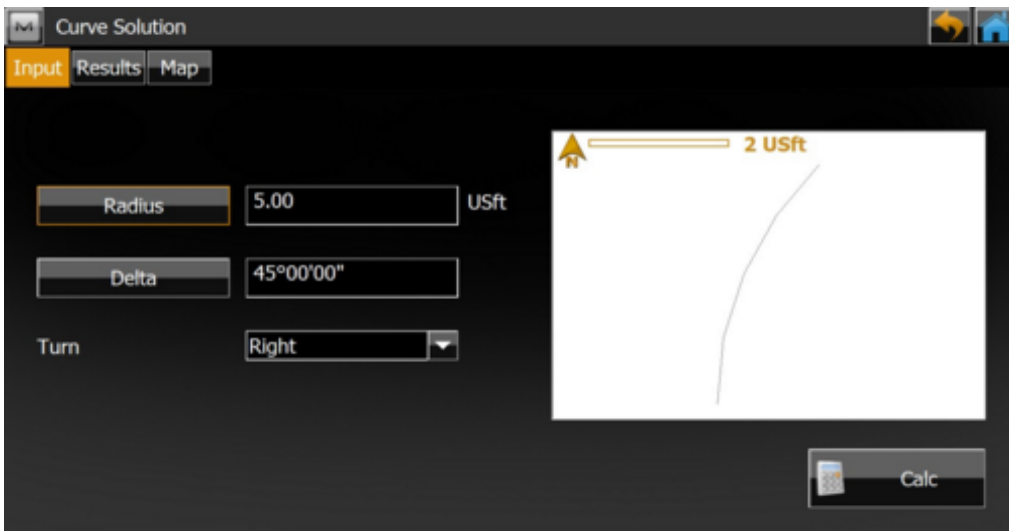




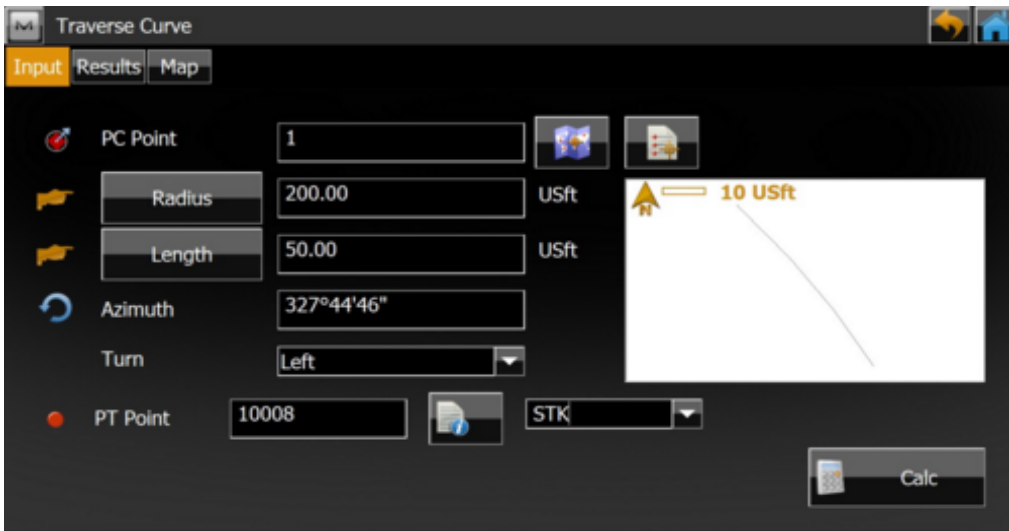
- Inverse Linework



- Curve Calculator



- Traverse a Curve



Map

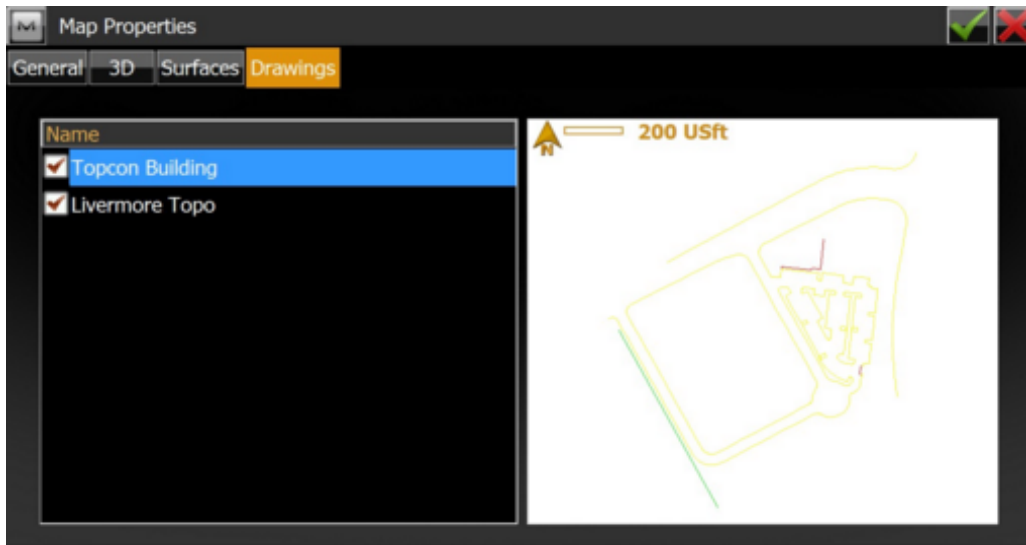
- Draw Toolbar: Point, Linework, Area, Fillet, Best Fit Arc, and Best Fit Line tools are available.



- Snap Toolbar: Added an ability to snap to end point, mid point, intersection, radius point, perpendicular, and quadrant.



- View Properties: Multiple background drawings can now be viewed.



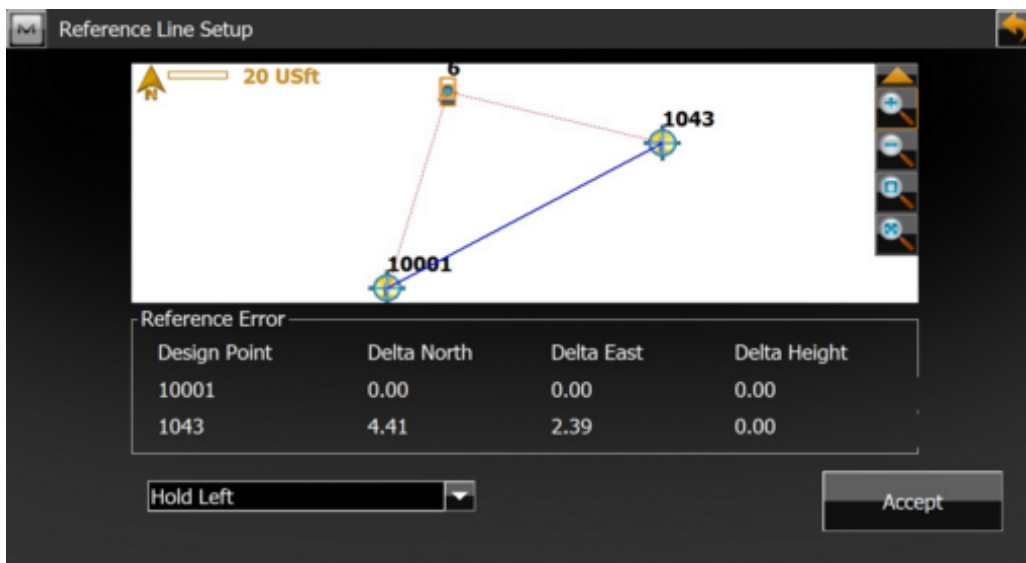
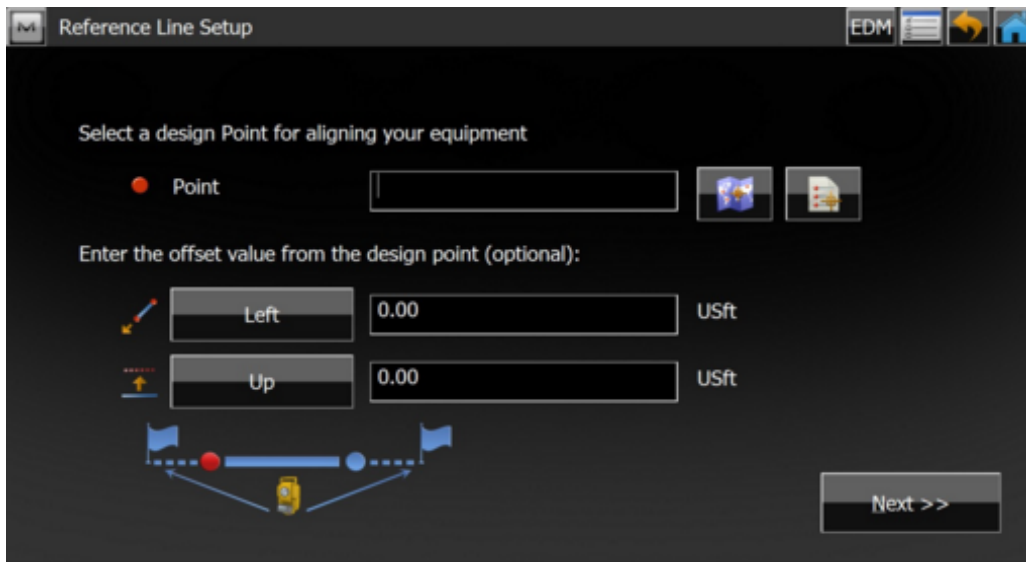
- Stake Line and Stake Line and Offset can be run directly from the main map if two points are selected in the map
- 3D view: Added an option to fix H axis for orbit rotation.

Connect

- Network GPS: Preference is given to RTCM3 over CMR if a mountpoint has mixed corrections.
- Network GPS: The mountpoint list will now filter out all mountpoints that cannot provide DGPS solution.

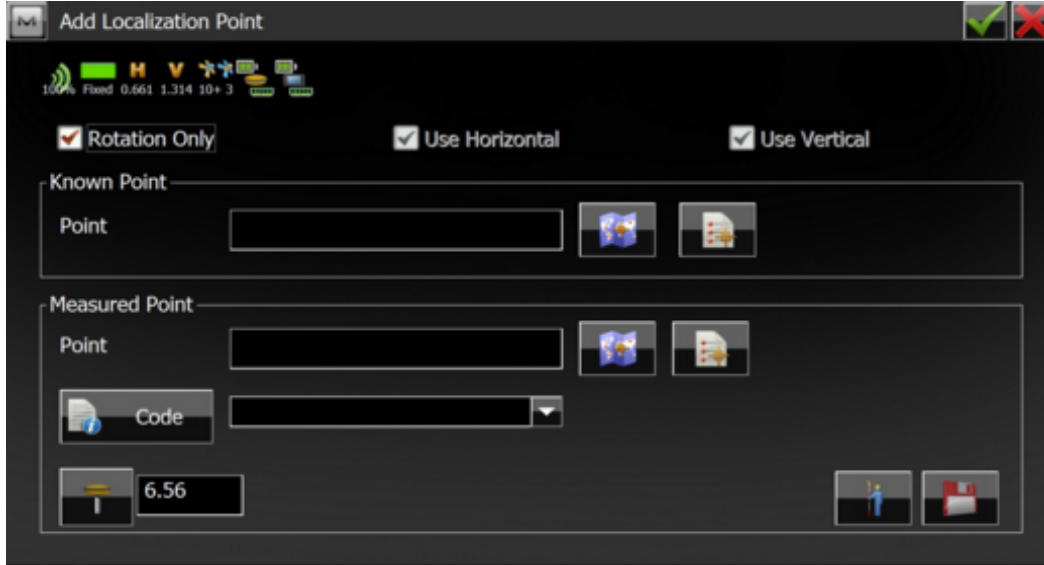
Setup

- Reference Line: New setup method that allows you the ability to setup the instrument and hold two offset points as the reference line. The direction between the two line points and the instrument measurement are considered to be perfect for the triangle solution, and the instrument location can slide along the reference line, based on holding one of the points, or the mid point of the measured reference line.



- Backsight: Now uses an improved wizard work flow.
- Backsight: Direct and Reverse measurements now supported.
- Resection: Now uses an improved wizard work flow.
- Status: Added the ability to view the status of Galileo satellites.
- Status: GLONASS satellites can now be switched off using the toggle. The toggle form erly only removed them from the view and did not actually turn them off in the receiver.
- Localization: Full set of localization parameters now displayed in the results dialog.
- Localization: Second point for rotation only method added. This allows the user to perform a one point

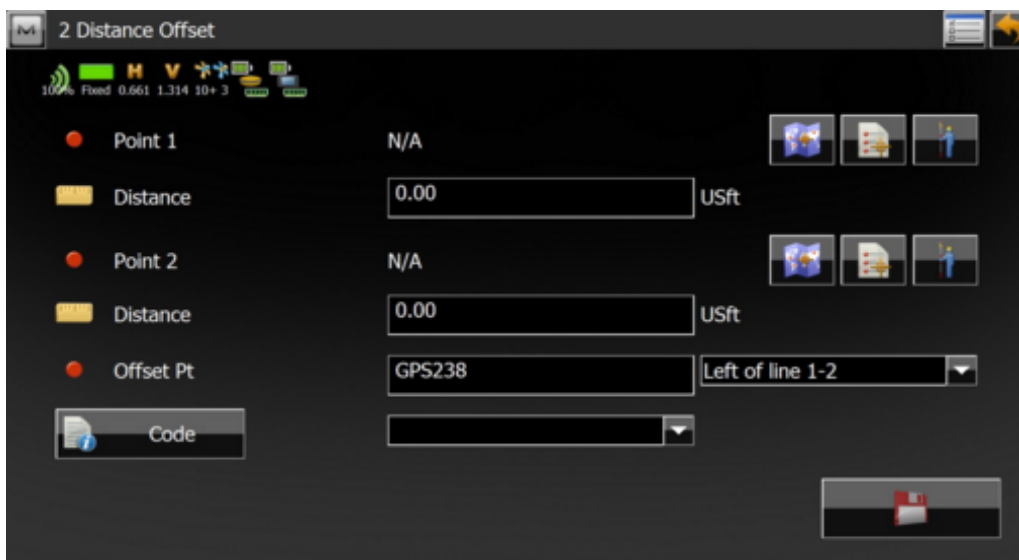
localization, and hold a second point for rotation only, so as to not introduce a scale factor based on the two points.



- Localization: Added the ability to specify the Geometric Origin of the localization, for First Point, or Localization Center (Pocket 3D method). Note that the Localization Center method is now the default setting.

Survey

- Set Collection: Re-measure functionality added.
- Offset: Added Distance-Distance Intersection method for GPS.

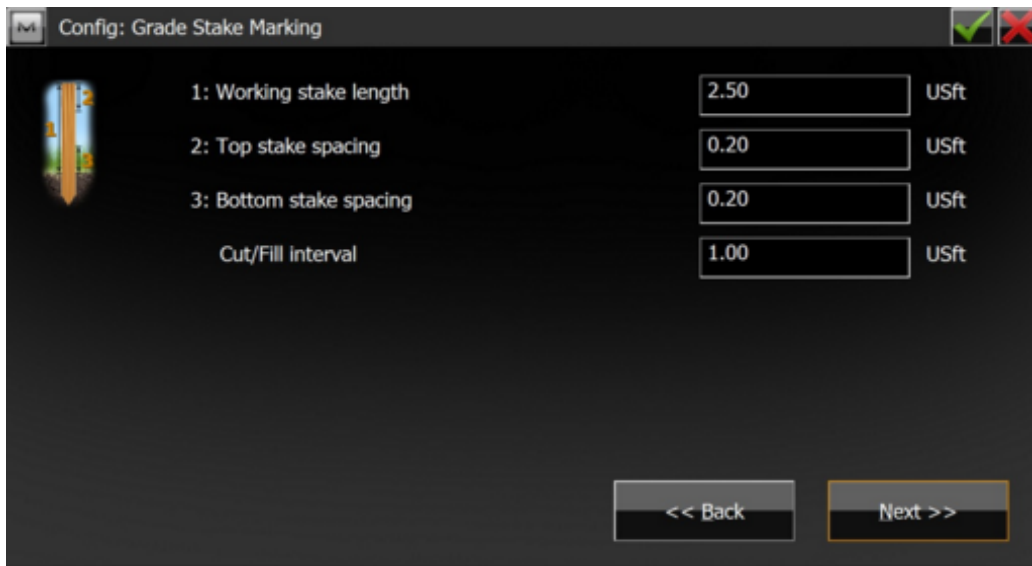


Stake

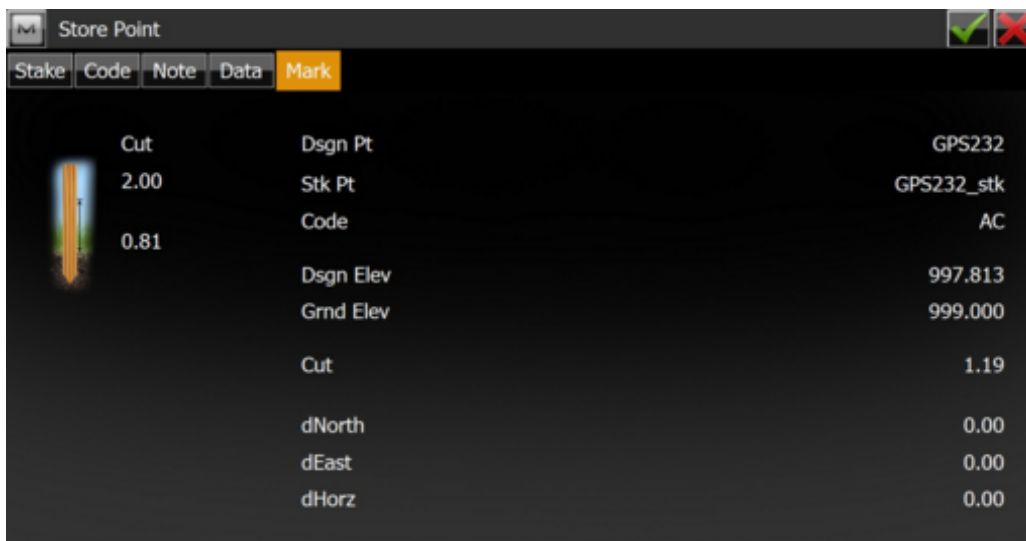
- Total Station: Averaging is no longer performed in Measure Continuous mode.
- Total Station: The Turn To angle and Horizontal Distance from the instrument to the stake point are now displayed as soon as you enter the stakeout screen (until the first shot is taken)
- Total Station: Drape Mode for motorized reflectorless instruments added. This feature drapes the design point to a nearby object, such as a building face or floor.
- New light bar added to map view to indicate cut, fill, and in tolerance.



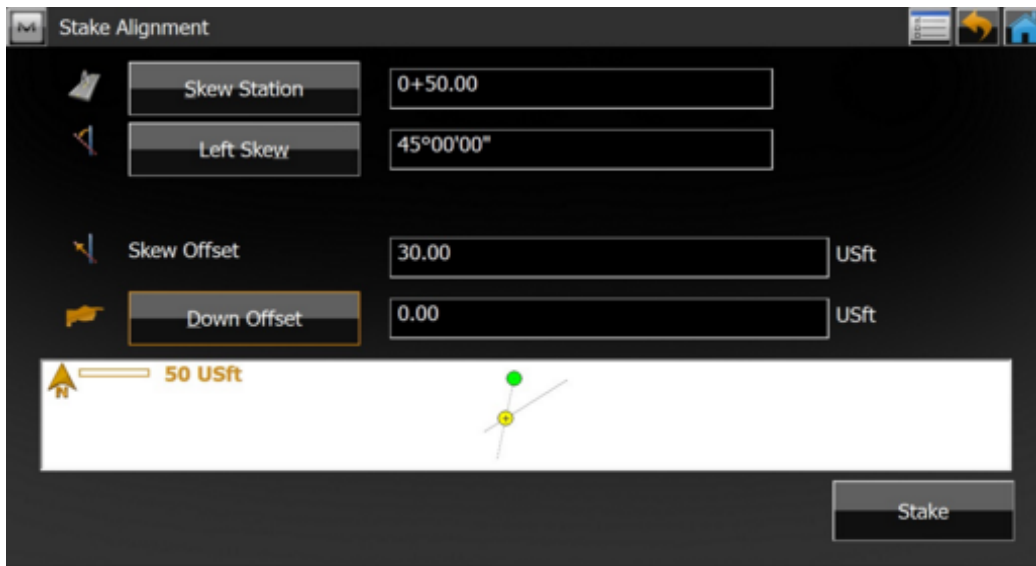
- Stake Surface: Added a new optional data label that will show the design offset value as set in the Design Offset dialog.
- Grade stake functionality added. This feature will provide an even vertical offset measurement from the design elevation to the defined working area of a stake, largely used for grade checking.
 - Added a new optional data label called Measure Up to Even Grade



- Added a new tab in the Store Stake Point dialog that shows the measure up value for an even interval Cut.



- Skew Station (Chainage) now supported. This feature allows the user to stake out an offset point that is defined by the road station and offset, and a skew angle off of the forward tangent.



- Stake Road: Added a new optional data label to show Current Segment Name.
- Added a new optional data label for Design Vertical Offset.

Enterprise

- Exchange: Prompt to Import After Download: File type is now set automatically based in the file extension.
- Exchange: Shape files are now automatically zipped when uploading (.shp.zip). Note that these .shp.zip files are now available for viewing on the MAGNET Enterprise map.
- MAGNET Relay: User's name of base is applied as mount point name
- MAGNET Relay: Tesla RTK and GRS-1 receivers are now supported as a Relay Base using the internal modem.
- MAGNET Relay: HiPer SR is now supported as a Relay Base using a field controller with an internal modem.

Hybrid Positioning

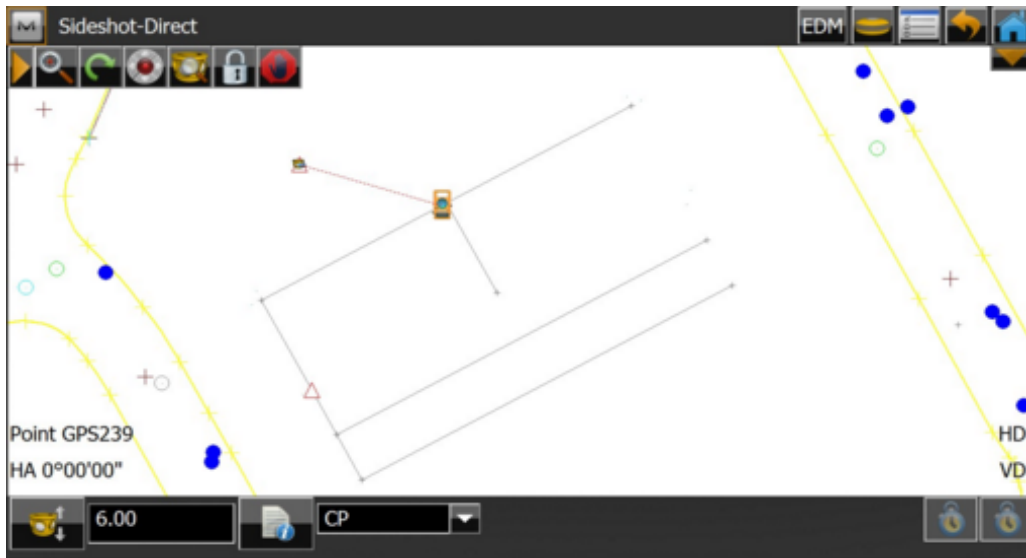
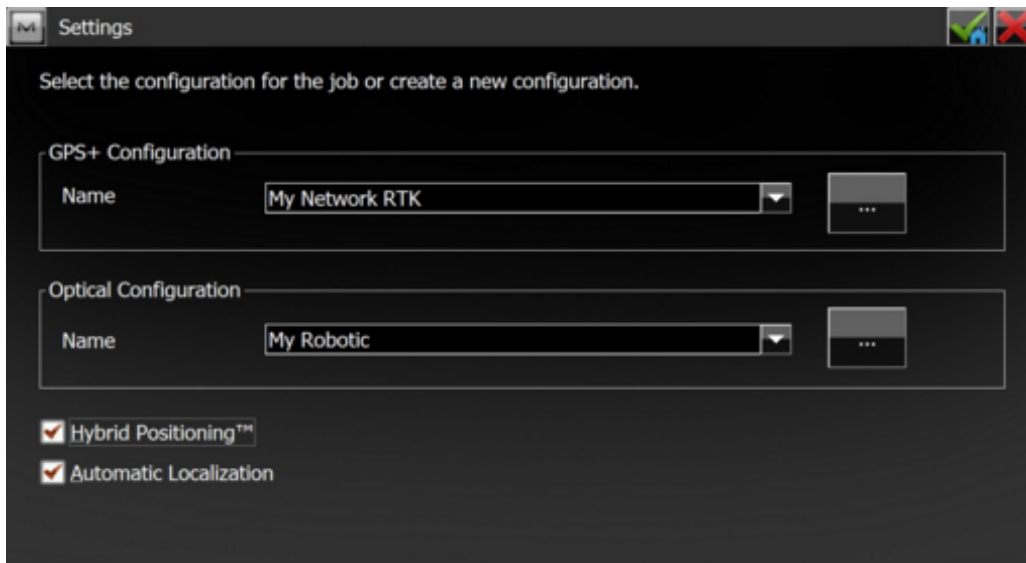
- New Hybrid Positioning module allows for the simultaneous connection to a robot and GPS.



Hybrid Lock will store a temporary GPS point, and then turn the robot to the stored point and initiate a standard search.



Hybrid Switch is a one-touch switch in Topo that toggles the user between using GNSS and Robotic measurement modes.



- Automatic Localization - This feature will try to automatically localize the project while storing total station points, solely for the purpose of being able to display Bing Maps, and to support Hybrid Search. Note that this feature is not intended to supplement a precise localization, and it should be toggled off if precise GPS work is going to be performed.
- Hybrid Resection: Updated the Resection routine for Hybrid mode, so that the user can store a robotic and GPS position at each location, whereas the GPS position is held as the known control point (enter an unknown point name to use this feature).

Field Site

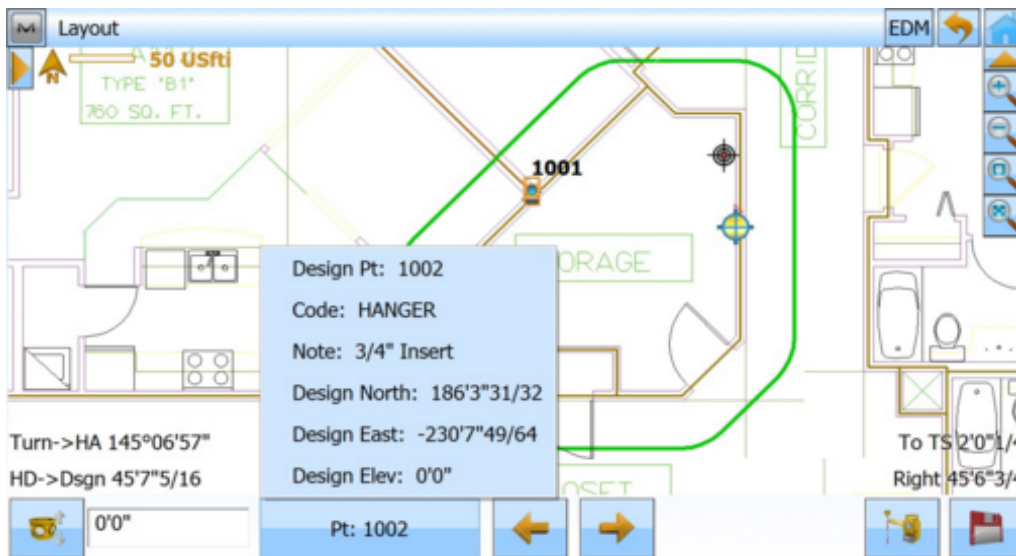
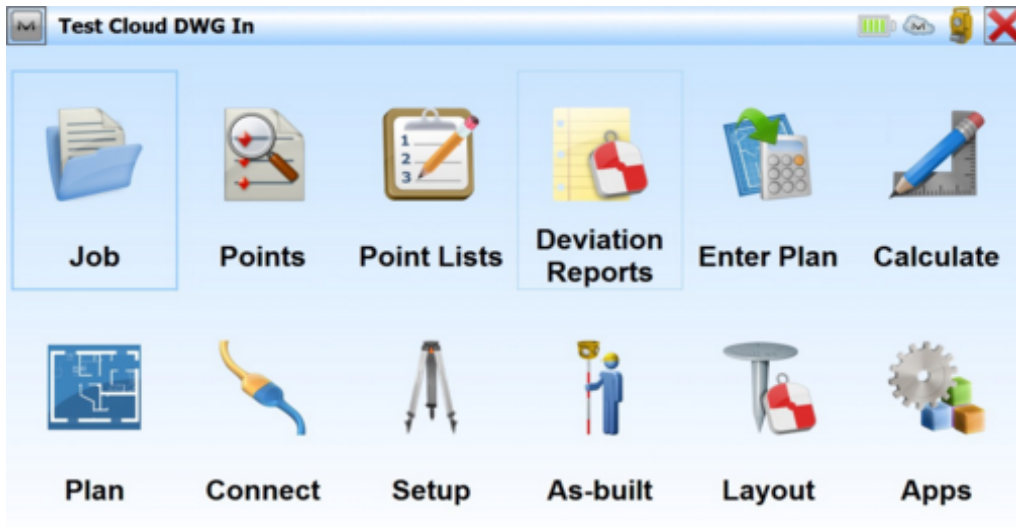
General

- Added Convention Total Station support.
- Added Stake Line
- Added Stake Line Offsets
- Added Stake Curve
- Added Stake Curve Offsets

Field Layout

New Product Introduction

MAGNET Field Layout is a new product focused at the building layout and BIM markets. This product supports conventional and robotic total stations, as well as the HiPer SR series GPS (RTK Only).



Office Tools

General

- Startup wizard added.
- Create new job wizard added.
- Quick Access Toolbar is customizable now.

Coordinate Systems

- NAD83 (2011).
- Japan geoid format now supported.
- Korea datum and projections (1985 & 2000) added.
- Finland geoid FIN2005N00 added.
- Colombia geoid now supported.
- New Danish map projections.

View/Edit

- Text object is supported (creating/editing/import/export).
- Add comments for embedded functions in Raw Data Plot.

Exchange

- Import from Trimble DC format.
- New command to convert Geoids to Topcon gff format (with set of borders).
- Export to Belgian Cadastre format.
- Export to Belgium GSI8 format.
- Import/Export for Profila format (Finland).

- Import/Export for 12D format.
- Export to Geolab IOB format.

Report

- Added the ability to make reports in PDF format.
- Added the ability to show the list of possible macros on report template creation.

Autocad Civil 3D

- Support added for Civil3D 2013.
- MAGNET Menu is now available for standalone AutoCAD.

Office Topo

New Features

- Added Enterprise Menu.
- Added "AutoSave" functionality and file recovery option.
- Added a point protect feature when transferring from Magnet Tools to Magnet Office Topo & Site. Now prompts for how to handle the point number conflict.
- Added new option to label minor contours when creating/editing a DTM.
- Added "By Code" to entity properties.
- Added "Hold Last Entity Selected" toggle in the program settings > preferences tab. With this toggle off the program will no longer automatically select the last entity created making drafting much easier; Magnet Office.
- Added ePlan functionality; (Australia, NSW, only).
- Added Modify DTM option that allows for adding new points to a DTM and removing points from a DTM. DTM is updated when points are added or removed.
- Added Create Points from DTM option that allows for creation of points from an import tn3 file.
- Added support for import of mjf.zip files.
- Added windows selection ability for vector processing.
- Reports can now be saved as PDF's.
- AutoSet Interval button introduced to Contour settings.
- Added a scale bar.

Improvements

- Improved dgn import functionality to Magnet Office.
- Improved export to AutoCAD dwg file to provide option to retain layer names with no prefix.
- Improved general import of AutoCAD dwg/dxf files.

- Improved export to AutoCAD dwg, removed prefix on symbol names blocks.
- Improved Offset routine to prompt for the side to offset.
- Improved Line Annotation Table to select text styles defined in text style library.
- Data Sync routine now points to default Magnet Field directories.
- Improved trim by boundary to elevate created points at the boundary intersections trim locations.
- Improved Update DTM to support polylines set as breaklines.
- Updated reports to include unit listing.
- Improved Data Transfer to include header for coordinate order.
- Added *.png image format to Attach Image to Entity routine.
- Added surface line distinction in the legend area when plotting cross sections.
- Improved Line by Traverse command by eliminating unneeded prompts when entering line by using point numbers.
- Improved Create DTM and Trim DTM to trim multiple boundaries simultaneously.
- Revise Merge DTM to display the DTM name only. The entire path of the DTM was shown which made the display extremely long in certain cases.
- Improved LandXML import/export.
- Improved Select by and Property options to include polylines.
- Improved List Data to include polygons and boundaries.
- Improved Create DTM to use polylines with elevations and polylines set to breaklines.
- Added progress bar to import and export functions.
- Improved Interpolate Point Elevation from dtm by allowing interpolation of elevation with the mesh off.
- Improved DTM creation in flat areas, ridges and valleys.
- Improved Explode option when exploding multiple strings/polylines containing arcs. Added Options for

the kind of arc to create, OK to All and the option to set the arc type selection as the default for the project. When a default is specified the dialog will not appear again. To reset the default setting type O when the explode command is selected.

- Improved Import Cross Sections by adding option to specify the layer for the cross section points.
- Library Text styles can now be selected for annotation tables.

Fixes

- Fixed issue with backup/restore directory being unable to set.
- Fixed issue with tin color when exporting to tn3 or tp3 file.
- Fixed issue with closing strings after import from Magnet Tools. Strings are now closed in Magnet Office.
- Fixed issue with importing tsj files. Files now import.
- Fixed issue with point numbers when exporting to a TP3 file from Magnet Office.
- Fixed issue with profiles not saving from the profile editor.
- Fixed issue with overlapping text in the coordinate projection dialog.
- Fixed issue with import cross sections from text file. Now allows for layer selection for imported cross sections.
- Restored ability to enter entire code when searching for codes in the code library.
- Fixed plotting issue. Some data was shown as broken and offset from correct position.
- Fixed issue with reports only printing to 3 decimal places.
- Fixed issue with boundary and polygon lines not being displayed when set to show.
- Fixed issue with data location on Google Map View in Belgium, Spain and Holland.
- Fixed issue with duplicate text being created when using Insert > Text> Bearing/Distance.
- Fixed issue with importing dwg/dxf files when multiple points had the same x, y coordinate but different z values. Program was not creating all the points.
- Fixed issue with Inquiry Area labels using incorrect suffix for metric setting.

Office Site

New Features

All new features listed in the MAGNET Office Topo section of this document are also in MAGNET Office Site.

- Added "Remote Access" to equipment using 3DMC via SiteLINK 3D menu (Requires SiteLINK 3D).
- Added new routine to the Model Menu to "Elevate by Point Text". Routine creates new point at the intersection of spot elevation marks and sets the elevation of the point to the elevation label associated to the spot elevation (Site only).

Improvements

All improvements listed in the MAGNET Office Topo section of this document are also in MAGNET Office Site.

- Improved Data Cleanup by adding option to set strings as breaklines during cleanup.
- Improved SiteLINK 3D chat notification.
- Improved PDF quality when imported to create vectors.
- There is now an option to close the road, when deleting an alignment, if the road is open.

Fixes

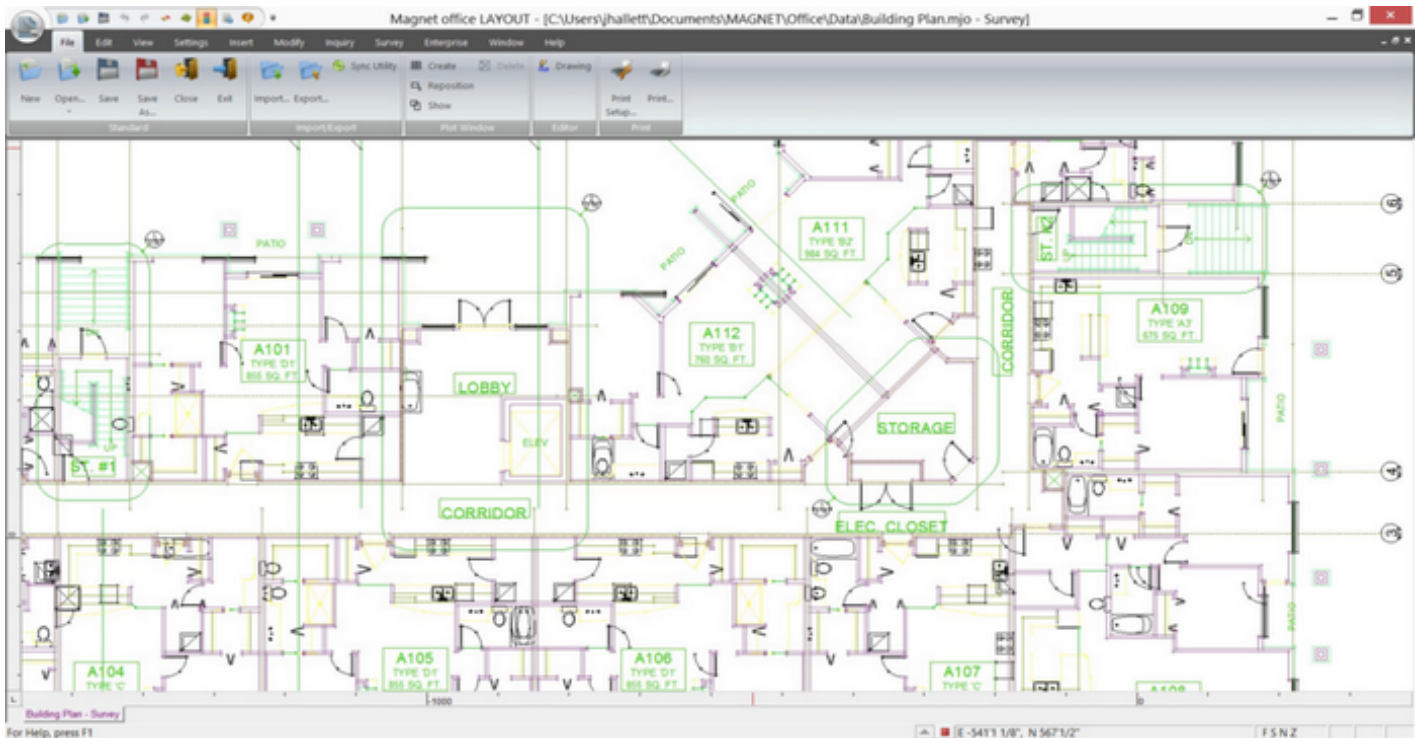
All fixes listed in the MAGNET Office Topo section of this document are also in MAGNET Office Site.

- Fixed issue with Center Plan View on selected client.
- Fixed issue with incorrect units displayed in SiteLINK 3D client list.

Office Layout

New Product Introduction

MAGNET Office Layout is a new CAD companion product to Field Layout, intended to be used for pre-calculating layout points from design files.



Note: Dealers should use the MAGNET Layout installation at this time, if they intend to show both MAGNET Office Layout and MAGNET Office Site or Topo.